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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,190	08/04/2006	Gunter Weickert	067670-5010-US	2925

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EXAMINER

TESKIN, FRED M

ART UNIT	PAPER NUMBER
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1796

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/560,190	Applicant(s) WEICKERT, GUNTER	
	Examiner Fred M. Teskin	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☒ Claim(s) 19 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 December 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20070405</u> . | 6) <input type="checkbox"/> Other: ____. |

Detailed Action

This Office action is responsive to application filed 04 August 2006. The preliminary amendment of 06 December 2005 has been entered. Claims 1-19 are currently pending and under examination.

The disclosure is objected to because of the following informalities: The presence of embedded figures, *viz.*, Figs. 6-9 on pages 10-12, in violation of 37 CFR 1.58(a), which provides that the specification may contain chemical and mathematical formulae, but shall not contain drawings or flow diagrams. Appropriate correction, as by submitting new drawing sheet(s) containing Figs. 6-9 and deleting said figures from the body of the specification, is required.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: **20** (see Fig. 1 and *cf.* related description on pages 7-8). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If

Art Unit: 1796

the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim 19 is objected to because of the following informalities: In the first line, "reactor" should be changed to --reactor system-- for consistency in terminology (*cf.*, claims 11 and 17, first line of each). Appropriate correction is required.

Claims 6, 7 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 6 and 16, the phrase "such as" renders the claims indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claims 6 and 16 also are indefinite due to improper Markush language in the recitation "selected from the group comprising ... or liquid". "Selected from the group consisting of ... and ..." is proper; see MPEP 2173.05(h)(I).

Claim 16 provides the limitation to "the separation fluidum" (see lines 1-2). There is no proper and sufficient antecedent basis for this limitation in the claim or in any claim from which claim 16 currently depends.

Claim 19 provides for use of a reactor according to claim 17 for the catalytic polymerization of olefins, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 19 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

Art Unit: 1796

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over either of WO 00/02929 or WO 00/69552.

Subject matter of claims 1-10 is a process for the catalytic polymerization of olefins, wherein olefins are contacted with a particulate catalyst in a fluidized bed and in a moving bed such that the residence time in the fluidized bed and the residence time in the moving bed are independently controlled. Subject matter of claims 11-19 is a reactor system comprising a fluidized bed reactor provided with a reactant inlet, a product outlet and means for maintaining a fluidized bed in the fluidized bed reactor and with a moving bed reactor provided with an inlet directly connected to the fluidized bed reactor and an outlet connected to the fluidized bed reactor such that the residence time in the fluidized bed reactor and the residence in the moving bed reactor are independently controlled.

WO '929 discloses a gas phase polymerization process in two interconnected reaction zones. In the first zone solid particles rise up, caused by the fluidization and in the second zone the particles sink downwards under the influence of gravity. In the second zone (downcomer) of the disclosed reactor, another gas composition can be adjusted as in the first zone (riser) thereof by feeding a gas and/or liquid into the downcomer through a line placed preferably at an upper part thereof. See Figures 1 and 4 of WO '929, depicting a reactor similar to the embodiment of Fig. 5 of the instant application. In reference to Figure 1 of WO '929, it is stated that the flow rate of this gas

Art Unit: 1796

feed can be regulated so that a flow of gas counter-current to the flow of polymer particles is originated in the downcomer, thus acting as a barrier to the gas mixture coming from the riser which is entrained among the polymer particles (WO '929: page 7, second full paragraph). It is submitted that one skilled in the art would have immediately envisaged that the residence time in the downcomer (corresponding to applicants' moving bed reactor) is susceptible of being controlled independently of the residence time in the riser (corresponding to applicants' fluidized bed) through regulation of the flow rate of this feed gas into the downcomer of the disclosed reactor. Alternatively, even if WO '929 does not anticipate the claims either explicitly or under inherency principles, it would have been obvious to one of ordinary skill in the art to judiciously regulate the gas flow rate to the downcomer section of the disclosed reactor so as to minimize the amount of gas in the discharged polymer, with the predictable effect of controlling residence time of the moving particles in the downcomer independent of residence time in the riser section of the reactor disclosed by WO '929.

WO '552 discloses a fluidized bed polymerization process using a reactor which is horizontally separated into different chambers. On page 5, line 5 to page 9, line 32, it is disclosed that the recycle liquid can be introduced in such a way that different concentrations of the liquid are present in different parts of the reactor (WO '552: page 5, lines 11-20; page 8, line 15 to page 9, line 13 and Figs. 2-4). Thus, WO '552 is considered to implicitly teach independent control of the compositions of the two compartments. That being the case, it is submitted that the possibility of establishing different fluidization conditions, and hence different residence times of fluidized particles

in the different chambers of the disclosed reactor (corresponding to applicants' fluidized bed and moving bed reactor elements) would have been immediately envisaged by one skilled in this art, or in the alternative, constitutes an obvious modification of the polymerization conditions disclosed by WO '552 to an ordinarily skilled practitioner.

Claims 1-16, 18 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Covezzi et al (US 7414098).

Covezzi et al have disclosed a process for gas-phase catalytic polymerization of olefins in a plurality of interconnected polymerization zones, including zones (1), (2) and (3) (see Figs. 1-5). Zone (1) is set up inside the fluidized bed; zone (2) is defined by one or several pipes, placed in vertical position, preferably coaxial with the fluidized bed reactor, each having an inlet located within the fluidized bed region of the reactor (hence directly connected to the fluidized bed reactor) and an outlet connected to the fluidized bed reactor via zone (3), established in a pipe 3' placed externally to the reactor and connecting the bottom of pipe 2' with the fluidized bed reactor at a point situated above the fluidized bed 1'. In the polymerization zone (3), fast fluidization or transport conditions are involved, so that the polymer particles flow upward through said polymerization zone and are then reintroduced into the first polymerization zone (1). (see col. 6, lines 17-35 and Fig. 1). Covezzi et al state that different working conditions can be established in each polymerization zone as regards the concentration of molecular weight regulator, monomer and comonomers, enabling polymeric chains with a different composition and/or different average molecular weights to be obtained in the

Art Unit: 1796

different polymerization zones of the disclosed reactor (col. 5, lines 45+). Referring to Fig. 5 of Covezzi et al, it is disclosed to introduce a liquid barrier stream (depleted in hydrogen as per col. 12, lines 1-15) into the upper part of the second polymerization zone (2), which acts as a stripping column to further remove the volatile component (e.g., hydrogen) from the gas stream flowing downward along the second polymerization zone (2) (*Id.*, lines 20-27). It is stated that by carefully balancing the flow of the solid through the section of inlet in the second polymerization and the amount of liquid fed through line 15, the partial evaporation of the barrier stream gives rise to a gas flowing upwards toward the velocity reduction zone 5, where it will be sent to recycle line 6 (*Id.*, lines 35-40). It is submitted that the described balancing of the flow of solids through the inlet section of the second polymerization zone and the amount of liquid fed to the upper portion of that zone would have been understood by the art-skilled as enabling the residence time of particles in the fluidized bed of Covezzi et al (zone (1), corresponding to applicants' fluidized bed reactor) and the residence time in their second polymerization zone (corresponding to applicants' moving bed reactor) to be independently controlled in the manner recited in applicants' claims. As such, Covezzi et al is deemed to provide a proper basis for anticipation of claims 1-16, 18 and 19.

No claims are in condition for allowance at this time.

Any inquiry concerning this communication should be directed to Examiner F. M. Teskin whose telephone number is (571) 272-1116. The examiner can normally be

Art Unit: 1796

reached on Monday through Thursday from 7:00 AM - 4:30 PM, and can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The appropriate fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Fred M Teskin/

Primary Examiner, Art Unit 1796

FMTeskin/06-12-09